# What is your diagnosis?

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DOI: http://dx.doi.org/10.1590/abd1806-4841.20165897

## CASE REPORT

A two-year-old child was referred to evaluate the increase in the soft parts in the lower back, left arm, and posterior portion of the lower limbs, which had been present since birth. The patient also presented flatfeet, epidermal nevi on the right arm, nodular plate with a cystic formation on the left arm, spacing between the first and second toes, capillary malformation in the trunk, as well as epispadia and scoliosis of the thoracic-lumbar spine (Figures 1 and 2). Imaging exams (computed tomography of the abdomen and magnetic resonance of the abdomen and right upper limb) revealed confluent and heterogeneous lobes located in the subcutaneous adipose tissue of the abdomen, with a cystic aspect, suggestive of lymphangioma, an asymmetrical increase in the fat deposit on the retroperitoneal posterior abdominal wall, as well as paravertebral muscles, presence of scoliosis in the thoracic-lumbar spine (Figure 3), and complex vascular malformation in the left arm (Figure 4).

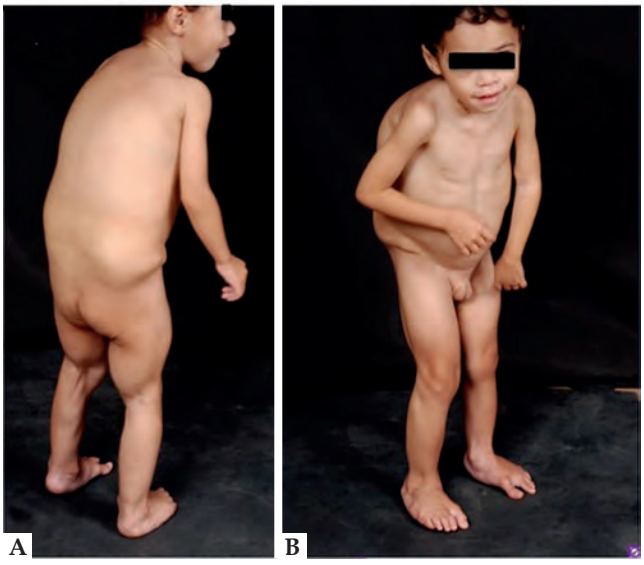


**Figure 1 :** Increase in the soft parts of the lumbar region and the posterior portion of the lower limbs (A), flatfeet, spacing between the first and second toes, and scoliosis of the thoracic-lumbar spine (B)

Received on 07.04.2016
Approved by the Advisory Board and accepted for publication on 17.05.2016
* Work performed at the Hospital das Clínicas da Universidade Federal de Minas Gerais (HC-UFMG) – Belo Horizonte (MG), Brazil.
Financial Support: None.
Conflict of Interest: None.

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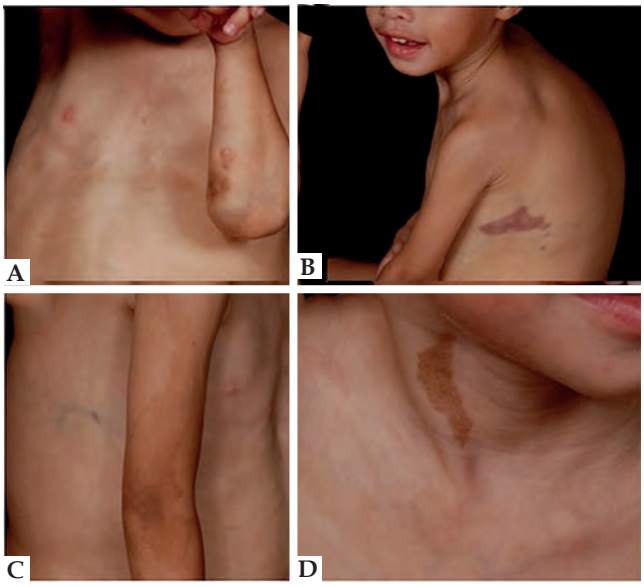


**Figure 2 : (A)** plaque with cystic growth on the left arm; **(B)** capillary malformation in the trunk; **(C)** epidermal nevi on the right arm and right cervical region **(D)**

## DISCUSSION

The overgrowth syndromes with complex vascular anomalies are rare entities characterized by the association of hypertrophy of one or more regions of the body and multifocal vascular anomalies[1]. The diagnosis and treatment are quite challenging. In the past, patients with skeletal growth were classified as having Proteus syndrome, whereas those with significant vascular abnormalities were diagnosed with Klippel-Trenaunay syndrome[2]. Recently, the CLOVES syndrome was described and differentiated from other excessive growth disturbances associated with vascular anomalies. The acronym CLOVES (***C****ongenital* ***L****ipomatous* ***O****vergrowth,* ***V****ascular malformation,* ***E****pidermal nevi,* ***S****coliosis and spinal deformities*) represents the main characteristics of the syndrome: adipose tissue overgrowth, vascular malformations, epidermal nevi, scoliosis, and spinal deformities.[1,2] With only about 20 cases published to date, the syndrome is related to the somatic mutations of the PIK3CA gene in the 3q26.32

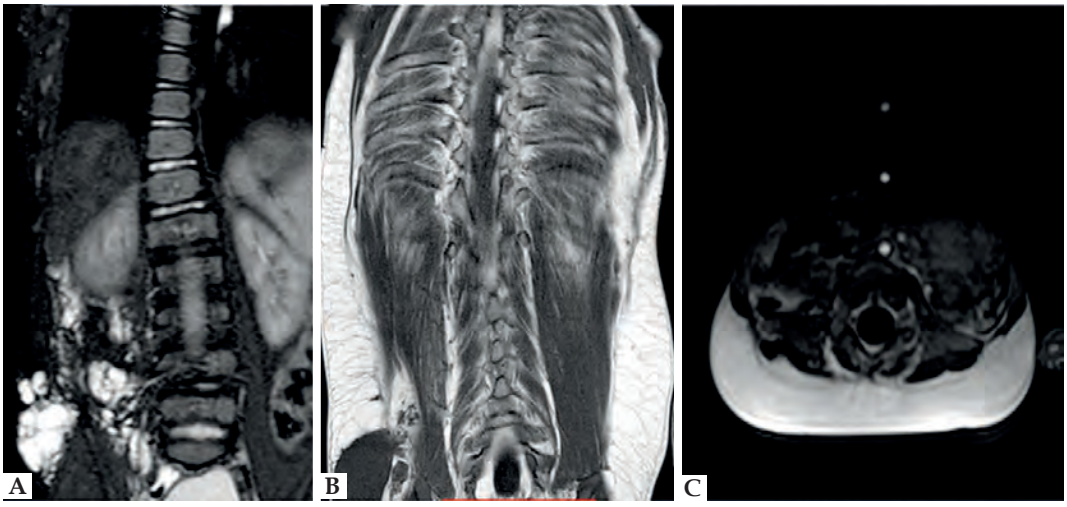


**Figure 3 :**
**(A)** magnetic resonance presenting confluent and heterogeneous lobulated lesions located in the subcutaneous adipose tissue of the right lower abdomen, presenting a cystic aspect; **(B)** asymmetric increase of the fat deposit on the retroperitoneal posterior abdominal wall, as well as paravertebral muscles and the presence of scoliosis in the thoracic-lumbar spine; **(C)** diffuse thickness of the subcutaneous adipose tissue, predominantly found on the thoracic-lumbar spine

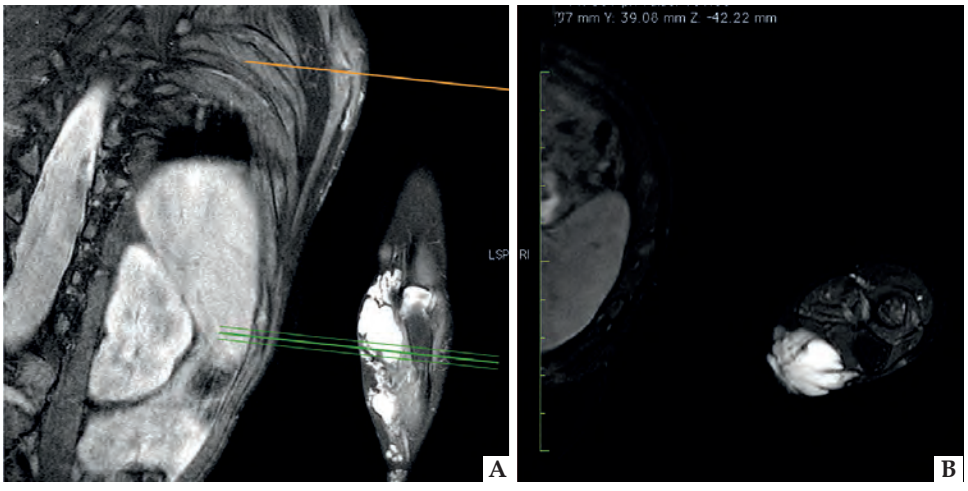


**Figure 4 :**
Magnetic resonance presenting a lobe-shaped expansive lesion in the subcutaneous tissue of the distal third of the arm, extending down to the forearm, on its ulnar surface, compatible with low-flow complex vascular malformation – coronal slice **(a)** and axial slice **(b)**

chromosome, with consequent activation of the Akt-mTOR pathway. The mTOR protein performs a key regulator role in cell proliferation, growth, and survival.[3] The activation of this pathway is related to other conditions of overgrowth, such as the Proteus and megalencephaly syndromes.[4] The diagnosis is usually clinical, owing to distinct characteristics, with the histopathological exam rarely deemed necessary.[5] The deformities are congenital and represented by lipomatous masses, which result in asymmetric hypertrophy of the trunk, in addition to vascular malformation and epidermal nevi.[5] The involvement of the central nervous system, through non-contiguous abnormalities of the gray and white matter, partial agenesia of the corpus callosum, and ventriculomegaly, has also been reported in prior literature.[6] Muscular-skeletal changes and acral anomalies include legs with an uneven length, chondromalacia patellae, scoliosis, large hands and legs, and an increase in the distance between the first and second toes. There are no associated cardiovascular, gastrointestinal, or hematopoietic anomalies.[5] The treatment is similar to other forms of overgrowth, with surgical reconstruction often recommended.[7] ❑

**Abstract:** CLOVES syndrome is a rare, newly described, and relatively unknown syndrome, related to somatic mutations of the PIK3CA gene. Clinical findings include adipose tissue overgrowth, vascular malformations, epidermal nevi, scoliosis, and spinal deformities. This report deals with a characteristic phenotype case, highlighting peculiar cutaneous and radiological changes.
**Keywords:** Adipose tissue; Klippel-Trenaunay-Weber Syndrome; Proteus Syndrome; Vascular Malformations

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**How to cite this article:** Panteliades M, Silva CMR, Gontijo B. What is your diagnosis? CLOVES syndrome. An Bras Dermatol. 2016;91(3):378-80.